

Subclass RATITÆ (18 species).

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In concluding these somewhat desultory remarks I must beg my fellow workers not to suppose that I claim any originality for the system above given. It having been a necessity for me to employ *some* system in certain pieces of work (such as the 'Nomenclator' and the various catalogues of animals in the Zoological Society's Gardens), I have endeavoured to frame one that is free from certain objections which are patent in the systems usually followed. It will be seen at once, by those who care to examine the references above given, that I have borrowed freely from the labours of Nitzsch, Huxley, Sundevall, Parker, and Garrod—authors who have lately shed a flood of light upon one of the most difficult zoological problems of the day, the best arrangement of the class of birds. My system is, in fact, that of Prof. Huxley's reversed, *i. e.* beginning at the top instead of the bottom, with slight alterations and emendations extracted from the works of the other authors above mentioned.

XLI.—*Henry Durnford's last Expedition to Tucuman and Salta.*

(Plate XII.)

[THE following is an almost verbatim copy of the diary of the late Henry Durnford, to which allusion was made in our July number. Some difficulty has been experienced in the matter of orthography, more especially as regards the names of places, but every care has been taken to avoid mistakes.]

MAY 14, 1878. Left the Central Station (Buenos Ayres) at 2 P.M. for Campana. During the journey saw most of the birds one sees on this route, *i. e.* *Ciconia maguari*, *Larus cirrhopcephalus*, and Ducks of many kinds, Spoonbills, a few Swallows (*Hirundo leucorrhoa*), *Lichenops perspicillatus*, &c. The opening of the Campana Railway has done a great deal towards fostering agriculture, and many acres of land pre-

viously open campo are now covered with maize, alfalfa, wheat, and, nearer Buenos Ayres, many peach-plantations. We arrived at Campana about 4.30, and at once embarked on the steamer 'Pruveedor.' The passengers chiefly consist of Russian emigrants, many of whom are going to the province of Cordova. They have enormous boxes (I suppose all their personal property is contained in them), and the hold is soon filled. After leaving the mole we sit down to an excellent dinner—seven courses, coffee, and excellent French and Spanish wines. Meanwhile, with a bright moon overhead, a keen and almost frosty air, the steamboat ploughs its furrow through the broad bosom of the Parana. The scenery by moonlight is very striking, much more so than by daylight. After leaving Campana the left bank of the river is formed of a steep baranca which increases in height as we ascend. Five or six hours of steamboat-travelling is avoided by the Campana route; but for any one who has not seen the islands in the delta of the Parana, I should recommend the route from the Tigre, taking the Northern Railway train from Buenos Ayres. The channel between these islands is sometimes very narrow, and a good view of the vegetation is thus afforded. At midnight we pass Zarate, the arsenal of the Republic, and San Pedro, higher up the river.

May 15. At daylight I am awoke by the noise of landing some cargo at San Nicolas, a place of considerable importance, which receives goods direct from Europe; it is situated on the borders of the provinces of Buenos Ayres and Santa Fé. About 10 o'clock we arrive at Rosario, the scenery on the banks of the river remaining the same. Black-headed and Ashy-headed Gulls (*Larus maculipennis* and *L. cirrhocephalus*) are common. *Sterna magnirostris*, a few seen. Bird-life, however, is very scarce on these waters.

About 10 A.M. I landed, and taking a cart, after showing my things to the custom-house officers, who gave me very little trouble, I went to the Posada de los Cuatro Naciones, close to the Central Argentine Railway-station, to be ready for the early train in the morning to Cordova. Unfortunately

I broke the key of one of my boxes ; it was 4 P.M. before I could get it repaired.

Rosario seems a very dull inactive place, and the natives I have seen have been either smoking or drinking maté, with few exceptions. The proverb of putting the cart before the horse is a common one in England, but it is carried out to the letter in Rosario. The carts are fitted with one pole, to one side of which the horse is fastened by the rinch or girth at his side. The animal thus, when the road is rough, sometimes turns round, and almost facing the cart, pushes it in front of him. The horses are finer than those in Buenos Ayres.

I bought some snails from an itinerant vendor this afternoon, and after taking out the insides as well as I could, I put them in paper and labelled them "Land-Shells, Rosario." I found them very common.

The weather is extremely cold ; the thermometer in the shade at 5 P.M. to day was 44° Fahr.

May 16. Left the Central Argentine station at daylight this morning, 6 A.M. Shortly before arriving at Roldan we passed seven tropillas of mules, fifty in each, tended by four men. These were laden with wine and other produce from San Juan and Mendoza, each animal carrying from 100 to 150 lbs. weight. They travel very slowly, not going out of a walk. The country up to Tortugas is undulating pampa, with a stiff argillaceous soil ; the grass is coarse, but well adapted for cattle. About Roldan and Cañada de Gomez much maize and alfalfa is cultivated ; but the land being fallow at this season, I was unable to see what other cereals it produces. Up to Tortugas, with the exception of a few *Buteo erythronotus*, I saw no birds I was not familiar with in Buenos Ayres. Much of the land is swampy, with some lagoons.

After leaving Tortugas the country becomes more wooded with tala, chanar, and algaube, the latter a dark-red thorn and much used in Buenos Ayres for fuel, the two former white thorns, and of no value for firewood, but useful for making corrals and for building-purposes. As we near Belle-

Ville station (called by the natives Frayle muerto) I noticed many (to me) new birds, green Parrakeets with long tails, some quite or nearly white *Taniapteræ*, Gulls (I think *Larus maculipennis*; of course not new), a large black-and-white Kingfisher, some *Rhea americana*, also some of the small pampa deer. About 4.30 we reach Villa Maria, the country from here to Cordova being flat and undulating alternately, but well wooded, the soil and pasture being the same as about Rosario. Shortly after leaving Villa Maria the Sierras come into view; but they are not very striking from a distance, and appear like long flat ridges. At 9 P.M. we enter the holy city of Cordova, after a run of $246\frac{1}{2}$ miles in 15 hours. The city is in a valley on the banks of the Rio Primero. I make my way at once to the Hotel Central, where I get a very comfortable room at moderate charges.

May 17. At 7 A.M. I find myself at the Northern Argentine Railway-station, and the train is soon in motion for Tucuman. The country at once becomes thickly wooded, the trees the same as in approaching Cordova. For the first twelve miles we traverse an undulating pampa; and then the ground is more uneven, and well-rounded hills are seen on all sides. The Sierras to the west appear something like Welsh mountains. The engine burns wood and we stop at every station to take in a load.

At noon we reach Los-Pozos station, after passing between the Sierra Ischilin and Sierra Quilino. The train labours up the ascent, the ground much broken and the rocks granitic. (N.B. Los Pozos possesses an hotel, and is situated close to the foot of a spur of the Sierra Quilino. It might be a good place to collect for a short time. Being on the outskirts of extensive woods, I should think it would be good for beetles &c.; much wood-cutting is carried on here.) At 2 we reach Quilino. We have now passed between the Sierras and rapidly run down hill. The forests are getting thicker and the undergrowth more luxuriant. Creepers of various kinds, acacias, large and small cacti, algaube, tala, and chânar, all seem to grow luxuriantly. About 5 we reach Recreo, after skirting the shores of an enormous salina (Salina

Grande), which is now full of water, but which is dry in summer. Here we sleep, the company finding beds and dinner free. There is no fresh water to be had in the neighbourhood, it being all brackish, and all used is brought in tanks from a distance.

May 18. We are delayed five hours in starting, owing to some trucks having broken down on the line, and soon after we get away one of the iron rods supporting the spring of our engine breaks, causing a further delay of an hour.

At Recreo I saw a tame hare, taken in the neighbourhood when quite young, but now full-grown. It appeared to me the same as the Patagonian species. I believe it must be the kind Burmeister has lately described as new: he received some skins from this neighbourhood. The black on the rump is perhaps not quite so dark as in the Patagonian species, and the sides and breast may be also lighter. (N.B. When I pass back this way I must try and get one or two specimens; they are quite common in the neighbourhood.)

As we continue our journey we pass through vast forests till within fifty miles of Tucuman, when the country at once becomes fine level pampa, with numerous herds of cattle and some small woods. Nevertheless water is scarce, and artificial ponds have to be made to obtain it. The pasturage is thick and luxuriant.

At 9.30 we reached Tucuman, and I take a carriage to the Hotel Paris, about ten squares, or blocks of houses, from the station.

May 19, Sunday. I delivered my letters of introduction to Juan C. Mendez and Incencio Liberani. The latter seems well up in the natural history of this locality (Professor of Natural History in the National College), and says that very little can be done in collecting near Tucuman. He advises me to buy three mules and hire a peon, and thus go to Oran. I intend taking his advice, and so shall do this as soon as things can be arranged.

The chuchu, or intermittent fever, hangs like the sword of Damocles over this country. I have seen one of the lads in this hotel suffering from it, and it is a most virulent form of

ague. The principal cause of it is the quantity of stagnant water in the neighbourhood ; but the sudden changes of temperature, which cause chills, must undoubtedly also have something to do with it.

May 20. To-day I have seen Dr. Brulant and Señor Santillan, to whom I had letters of introduction. With the advice of the latter, I have made up my mind to hire four mules, two for baggage, one for a peon, and one for myself. He says it will be much cheaper than buying them.

Tucuman is situated on low land ; the Sierras are within five miles of the town, and run about N. and S. The second range of Sierras seems about twice as high as the first, and the tops seem generally in the clouds. The first range is about 2000 feet high.

May 21. I have not yet been able to procure mules, and am waiting while Sr. Santillan is making inquiries &c. for me. I have engaged a peon, Andrada by name, at 15 dollars per month, and I also find him his food. He is a "Tucumano," and appears a rough-looking fellow ; I hope he may turn out well.

May 22-23. Patience. Still waiting for the mules. In this country it is no use being in a hurry. It is now the beginning of winter here, and the thermometer in the patio of the hotel at night averages about 60° Fahr.

May 24. I have been out shooting for an hour this morning close to Tucuman, and found the following Buenos-Ayres birds :—common, *Troglodytes furvus*, *Vanellus cayennensis*, *Saurophagus sulphuratus*, *Ardea cocoi*, *Zonotrichia pileata*, *Pholeoptynx cunicularia*, *Furnarius rufus*, *Polyborus vulgaris*, *Molothrus bonariensis*, *Milvago chimango* ; rare, *Coccygus melanocoryphus*, *Guira piririgua*, in parties of three or four ; and I also shot and skinned a small Tyrant-bird, not uncommon, flies like a Woodpecker. Finch, reddish underneath, with a very stout beak ; two seen. *Mimus* of some kind common, and a very small insect-eater ; two seen.

I found some clear-winged butterflies pretty common, also the peacock-butterfly and painted lady common, and the white butterfly of Buenos Ayres abundant.

May 25. *Turdus rufiventris* (?). I shot a Thrush this morning, which I believe to be this species, and found it not uncommon.

May 26. Butterflies. I have taken some today near the Rio Dulce, but all, I believe, common ones. There are very few to be had now.

May 27. All day trying to find mules, but unsuccessful; the people of this country are so intensely slow and lazy.

May 28. Partridge, the same as the small one seen in Buenos Ayres, pretty common about the campo. Started early this morning with an estancien to see some mules about eighteen miles S.E. of Tucuman. We arrived about 12 at his estancia, and after breakfast I chose four mules out of his troop of about forty. I remained the night at the estancia.

The campo about there is not unlike the Buenos-Ayres campo; but the pasturage is stronger, and the ground more undulating and woody. It has the great disadvantage, however, of being very short of water; artificial ditches have to be made for leagues to carry the water from the river to the campo.

May 29. I arrived at Tucuman about 11 A.M. with the mules. All the afternoon I was engaged trying to find "aparejos," or pack-saddles for them. Finding it impossible to meet with any, I determined, if possible, to hire a cart, and tomorrow morning I am going with Sr. Santillan to see if we can meet with one. I believe that, on the whole, it will be much more convenient than pack-mules.

May 30. At last, I believe, all is arranged, and I hope to be able to start tomorrow morning. I have bought today a pair of aparejos, for 8 and 6 dollars respectively. The mules cost me 30 dollars each. I am anxiously looking forward to the journey.

May 31. Started at 10 A.M. this morning for Salta. Our journey at first lay through thick woods till after getting about six miles from Tucuman the country became more open. About 1 it commenced to rain, and I determined to stop at the first rancho if possible. Accordingly, about 2,

we met with a very hospitable old Tucumano, who gave us the use of one of his sheds for sleeping. I went out and shot three birds and skinned them. Jay, called "Urraco," common, one skinned; it has a variety of notes, varying from a screech to a shout. Crested Sparrows, two skinned, very common about the low hedges; they have a peculiar loud and jarring note and go in flocks, appear to prefer thick cover to open ground. Some other Buenos-Ayres birds seen here are:—*Columbula picui* and *Tinnunculus sparverius*, common everywhere; *Cinclodes fuscus*, scarce, near the river; *Sycalis luteola*, very common about trees and shrubs; *Paroaria cucullata* and *Fluvicola albiventris*, common everywhere; also *Myiarchus tyrannulus*.

June 1. The morning looked very threatening when I awoke about 7 A.M., and I determined to wait a little to see if it would clear up; but finding it still cloudy at 10 I started, and we slept that night about six leagues from our rancho. The road, as far as we travelled, is exceedingly pretty, and towards dusk we approached close to the Sierras. On the journey I shot three birds called "Cursor" (Arg. "Chuña"): two seen on the road today frequenting stony ground, and one shot; not common: saw no more. Jay, a long-tailed one, shot today in the monte, and two more seen. Woodpecker, one shot and skinned.

The road all the time runs through thick woods. We pass very few passengers on horseback or muleback, but several troops of "mulas cargadas" and "carros," also bullock-waggons. I had hoped to reach Vipos by dark; but finding it impossible, and the night very misty, we slept on the campo.

June 2. We made an early start and reached Vipos about 9 A.M. We have been ascending some low Sierras for the last few miles, and the view looking down on Vipos, situated, or rather buried, amongst numerous Sierras, is very fine. The village takes its name from a river flowing about E. and W. from the Sierras. I determined to remain here some days, and accordingly went to the posta of the diligencia, and there I found a very obliging landlord, who allowed me

the use of a room &c. We unpacked the mules as soon as possible, and I took a walk after skinning the birds shot yesterday. The Sierras are barren, and, I imagine, something like Mendoza, very stony (all granite); but the people are too lazy to turn this to account, and prefer to live in mud ranchos. I shot some birds and saw many; but the country here is evidently not so rich as on lower ground. The thermometer at dusk marked 51° , and a cold wind all the morning rendered my excursion not very pleasant. The principal things that strike a stranger here are the large cacti, some of which grow as high as thirty or forty feet, all armed with most formidable-looking spines.

The country reminds me somewhat of a luxuriant Patagonia, the trees being large but scraggy, and the thorn-bushes and underwood not very thick. I took a walk in the morning and found Crested Sparrow very common in flocks, one skinned; Humming-bird, one seen and skinned, no more seen. I believe this to be the species I wanted. A little dusky insect-eater, pretty common; one skinned. *Parula pitiayumi* very common; one skinned. Black-headed Tit pretty common; one skinned. All these I found on the slopes of some low Sierras near the Rio Vipos; I also saw two more Buenos-Ayres birds, *Sisopygis icterophrys* and *Elainea albescens*, common. All the birds seen today may be considered Sierra birds, in distinction to those which frequent the more luxuriant woods and thickets.

June 3. Took a walk, same direction as yesterday. Humming-bird, long-tailed, quite common; young of the year have tails much shorter than the old ones of both sexes. Red-breasted Finch, male and female shot, pretty common. Reddish thicket-loving bird, pretty common, has an exceedingly loud and jarring note; one shot. Small Flycatcher, one with long tail, shot; pretty common in the thickets. Small Flycatcher, short-tailed small one, rare; one shot. Partridge, one skinned, erects crest sometimes. The weather is very cold, the thermometer this morning at 8 A.M. marking 49° , a very unusual figure for this place, even in winter.

I will just mention now that Tucuman possesses in Señor

Liberani a very active and intelligent Professor of Natural History for the National College. The great difficulty he has to encounter is the want of funds, the government not allowing him more than his salary, no subsidy for museum &c. He is most courteous to strangers who visit him or take an interest in their mutual hobby.

June 4. Chuchu seems to be the great curse of the country. About one fourth of the people are constantly suffering from it. Whether it comes from damp or the sudden changes of temperature, I am unable to say; but the general opinion here is that it arises from dampness; and yet here, at Vipos, the climate is exceedingly dry, and the air feels fresh and invigorating, but chuchu is only too well known. The summer months (the wet season) are the most fatal.

The owner of the estancia and posta where I am staying is a Chileno, and a delightful companion. He has been out shooting with me, and it is a pleasure to see the ease with which he threads his way through the thick undergrowth and cover in the monte. I can hardly keep up with him.

Wood-Pheasant (Argentine "Charata") not uncommon in the thick monte, lives in the trees; when flying spreads its tail, and sometimes erects the elongated feathers on its head. Nests in trees, making large structure of sticks.

Thrush, one shot to day, the only one seen; habits apparently like the common *Calandria* here.

Finch, one shot, a young bird apparently; the old ones are, I believe, perfectly bluish all over; saw several.

June 5. Started at 10 A.M., leaving my kind host. The road is winding through beautiful scenery. We travelled for eighteen or twenty miles, at 4 P.M. reaching Trancas, where we passed the night in a rancho. No collecting.

June 6. Started early on our journey. For the first twelve miles road, as usual, wended through thick monte near the foot of the Sierras. About noon reached Tapi, a most beautiful spot, the scenery to the left, looking up the river of that name, being most lovely. The Sierras are low, but much broken, and irregular ground prevails, making the picture any thing but monotonous. We are now, after passing

Tapi, in the province of Salta. The road now gradually ascends, and the country becomes quite open as far as Mozotes, where we stopped, about sixteen miles from Trancas. Cattle are numerous here, and goats, but very few sheep. I am told that goats pay better than the latter. The weather is very cold, quite like winter in Buenos Ayres. Ostriches, many seen on the open campo about Mozotes Bandumia, same as in Buenos Ayres. Finch, yellowish green, one skinned; common in the woods bordering on the open camp.

June 7. Started at 8 A.M. from the plain of Mozotes. This place is beautifully situated amongst the Sierras, and the scenery is especially charming. The view to the left, taking the road to Salta, brings in sight high and rugged Sierras, that in front being low, over which we pass. About five miles from Mozotes the open campo ceases, and we again enter woods. The road continues thus, but very winding, till we reach Rosario, about 3.30, a good twenty-one miles from Mozotes. Here I determined to stay a few days, and found an empty room. Impossible to collect travelling.

June 8. This morning took a walk to the east of Rosario, towards Agua caliente, or the hot springs, which, I am told, exist about six miles from this place; but tomorrow, or next day, I intend visiting them, as it is something very unusual to meet with such a thing here, and they are probably the only ones in the republic. There is not much collecting to be done here, the country being everywhere the same—woods and Sierras. The people are kind and hospitable, but intensely lazy and indolent, doing nothing but what is absolutely necessary. I am living in a room for which I pay 2 rs., paying 2 rs. daily for the mules, which feed in a potrero; it costs me less than 1 dollar 4 rs. to live here, in English money about 4s.; alone I could live here for about 2s.

Pretty little Finch, "Pepitero," pretty common in the woods; one shot.

Red Finch, "Perisoso," a few seen, one shot; the female, I believe, is green.

Large Hawk, rare, one shot; seen also at Vipos.

Small blue insect-eater, one shot, but not common.

Woodpecker, pretty common, one shot; has a loud whistling note.

Crested Sparrow, common, goes in flocks like *Zonotrichia pileata*; one shot.

Humming-bird, long-tailed, seen in the monte this morning.

June 9. I took a walk along the river, but had to return, owing to rain, which fell slightly all day. There is nothing interesting in Rosario; the nearer one goes to the Sierras the thicker the woods become, which seems to be the rule everywhere here.

Machetornis rixosa, one skinned, common in flocks; spends most of its time on the ground. *Synallaxis*, one shot; the northern representative of *S. major* of Buenos Ayres; uncommon; makes a large nest of sticks, with hole in one side; loud and screeching note. Toucans come as far south as this. Several persons have described the bird to me as existing in the monte, but I have not seen it.

June 10. Today we have had almost incessant rain, and I have hardly been able to do any thing. At one o'clock, however, I took a horse and rode with a man I met with here to Agua caliente. This hot spring is on the side of a hill which forms part of a Sierra running about N. and S. The ridge of the Sierra is low, and distant about five miles S.E. from Rosario. The water issues from various points, in some places very hot (too hot for the hand), in others warm only, and in others cold. It comes with considerable force, and runs all the year. Many persons afflicted with the chuchu and other diseases come to these springs in July and August, for which it is said to be a very good cure. The rocks here are porphyry and a kind of granite. I have brought a sample. The cleavage is about E. and W.

Humming-bird, long-tailed, very numerous by the hot spring.

Little Blackbird (same as in Chuput) common by the river.

Little cinereous Plover (same as in Buenos Ayres), a few seen by the river.

June 11. Left Rosario this morning about eleven, traversed

about fifteen miles, and stopped for the night at Lo Noyalitos, a collection of huts in open camp-land.

The scenery is more beautiful after leaving Rosario, and the road finds its way over many little hills and valleys.

Hawk, one shot ; only one seen.

Buenos-Ayres White Falcon (*Elanus leucurus*), black wings; a few seen on open lands.

Patagonian Falcon (*Circus cinereus*), the common kind; female brown, male white ; a good many seen.

June 12. Started early from our rancho of last night, and did about eighteen miles, stopping the night at Rio de las Piedras. Scenery lovely, the low Sierras dotted with trees to their summits. The weather is more favourable, and today has been very warm, the thermometer at 8 P.M. marking 71°. Scenery continues lovely ; the birds as yet do not, however, differ much from those seen near Tucuman. I intend stopping here tomorrow to rest the mules, and in three or four days afterwards I hope to be in Campo Santo and call on Sr. Cornejo.

This (Rio de las Piedras), I think, would be a good spot for a collector. The woods are large and thick, and the river always well supplied with water. Scenery improves still more as we advance. *Synallaxis*?, one shot, three seen, male, frequenting low scrub in open spots.

June 13. Remained all day at a rancho close to Rio de las Piedras, where I slept all night. Shot a few birds.

Limnornis common in the low bushes ; it has a loud jarring note, like *L. curvirostris*, and hides continually in the low bushes ; one shot.

Minute Woodpecker, one shot, only one seen ; habits similar to others of this genus, but frequents smaller trees.

Small Flycatcher, common, one shot. I believe same as that shot on the 8th, but I am not certain.

Pigeon, one shot, very common, frequents pretty low trees, seen everywhere ; sometimes raise long feathers on head.

One other bird shot and skinned.

June 14. Started at 9 this morning on my journey; about 6 arrived at the Rio Pasaje, the largest I have yet seen.

Like all the others, it runs about east and west, and in the time of floods is difficult to pass. The scenery, as usual, has been very lovely. One of my mules (a cargen) shows signs of knocking up, and I have determined to remain here to-morrow to rest him. There is no meat to be had in the place, which is a great drawback, and consequently I am without any thing to eat.

June 15. Went out shooting by the river today, but did not get very much. The only thing I can get to eat is a fish, which I bought for sixpence. My hooks are not large enough to catch the fish here with. In addition to the Buenos-Ayres birds mentioned before, I have seen:—*Anthus correndera*, rare; *Tenioptera coronata* and *Serphophaga nigricans*, common; *Elanus leucurus*, *Milvago chimango*, and *Ardea cocoi*, rare; *Ardea*?, large, white, rare; *Theristicus melanopis*, common; *Ægiatitis collaris*, rare, in river-beds.

Little insect-eater, one shot, very common in low scrubby ground.

Dark-blue Finch, common; feeds on buds and berries.

Sparrow, very common.

Jay, long-tailed, common in thick woods; remains motionless on bough a long time; called "Gallo del Monte."

June 16. Went out shooting again, but did not do much. I shall leave here early tomorrow morning. In the afternoon passed a gentleman going to Rio de las Piedras, who owns a factory there; promised to call if I passed back the same way. His name is Don Patricio —.

The weather has become very cold. The soil here is very fertile. Don Patricio assured me that one aroba of wheat had yielded him twenty-five arobas in Rio de las Piedras. Goats here are worth about 6s., sheep 3s. There is a flock of goats guarded by two dogs; every morning the dogs take the goats to the monte to feed, where they remain all day. At night they bring them back. The owner assured me that they sometimes went as far as six miles, accompanied by the dogs, a lurcher and a rough-haired little terrier.

Synallaxis, one shot, only one seen; found in low thickets, like the majority of the others of the genus.

June 17. Left early, arriving at night at the Posta Palonite. The scenery is beautiful, as usual, but the soil is more arid as we go north, and the trees smaller. We are now on very high ground. At this post I had to pay two pence per head for my mules to drink, there being no natural spring in the neighbourhood, nor on the road from Rio Pasaje. One of the mules shows many signs of failing. Shot nothing.

June 18. Left the posta about 11, arriving at 4 at Cobos, a small village of about 100 inhabitants, twelve miles. Nothing of interest to note. Water scarce on the road, but plentiful at Cobos.

The road for Campo Santo leaves the Salta road here, the latter going W. by S., and the former N.

June 19. Took a walk in the monte near Cobos. This village is situated on high ground amongst low broken Sierras. About two leagues south of Cobos is a large lagoon, containing water throughout the year. It has lately been fenced in, the land having been sold by the government, and one has now to pay about two pence per head for animals to drink. It is a great shame, situated as it is by the roadside. Large Parrot, one shot, very common here. It does not usually go as far south as Tucuman, but here is very common; feeds on buds. Small Humming-bird, one shot, several seen. Humming-birds are numerous here, though the verdure is not luxuriant. Black-and-white insect-eater, one shot, seen all the way from Tucuman; lives in thickets and shuns open places. Brown Finch, common, one shot. Little Black-bird, one shot, seen frequently all the way from Tucuman.

This evening I caught a bat, which is common here, and which I have met with throughout the provinces of Tucuman and Salta, but have not been able to obtain before. It has a most curious fleshy shield, which arises from above the nostrils and stands erect about $\frac{1}{3}$ of an inch. It is very sparsely covered with hair. I presume it is an organ of feeling.

Chauna chavaria and *Cygnus coscoroba* common in the lagoon "Cabeza del buey."

June 20. Shot nothing and took a rest for the sake of the

mules, which require it much. The people (Sattenos) with whom I am now stopping are the meanest and most miserable lot I have met with yet. They are two brothers, are rich, and have considerable plantations of sugar-canes, live in a small rancho, eat out of one plate, never, as far as I can see, buy any thing to eat but charqui, which, with an occasional potato, forms their sole food, the soup made therefrom their sole drink. Fortunately it is rare to meet with such persons.

June 21. I left the house, not sorry to do so. Cobos is situated a little to the north of Salta, on the road to Oran. Being situated on high ground, birds are now very scarce. The rocks seem in great part volcanic, and the hills and Sierras assume very fantastic shapes. About 12 I arrived at Campo Santo, at the establecimiento of Don Juan Cornejo. He is a most kind and hospitable gentleman, and placed a room and every assistance at my disposal. I intend stopping here a few days to recruit the mules, and shall then take a by-road, which he recommends to me, to San Pedro, towards Oran. This I intend to make the limit of my journey, so shall probably stop there some time.

The weather is very cold, at 4.30 the thermometer marked 52°. Last night it was so cold I could not sleep, and in the middle of the day so hot that I could not go out shooting.

Hawk, one shot, not common, but seen occasionally throughout my journey. A very swift flier, and frequents comparatively open campo-land.

Finch, male and female, shot, not uncommon, goes in large flocks. *Sycalis luteiventris* is very common, in enormous flocks.

June 22. Thermometer 8 A.M. 46°. Weather still cold and cloudy. Sr. Cornejo, with whom I am now staying, has large plantations of sugar-canes. His ancestors were the first to introduce this plant from Peru, as well as the coffee-plant (*Chirunga*) and other productions. Except in the hot season the sugar-cane always flourishes, and is used for various purposes. The greater part of the work in this establishment is done by "Malaco" Indians from the Chaco. Every year Sr. Cornejo sends his capataz to the Chaco

to bring the Indians to Campo Santo. He, the capataz, finds all the food on the road, and returns with them when the work is finished ; they come in April, and leave in September or October. Whilst here they live in huts made of the sugarcane after the sweet juice has been extracted, built in the shape of ants' nests. They show considerable skill in building these huts, but live like pigs inside. They form a small colony of about 300 persons, all told, men, women, and children, close to the house, are great thieves, and have to be carefully watched. They live in the Chaco a perfectly nomad life, like the Patagonian Indians, spending most of their time on the shores of the Vermejo. Having no horses, they travel on foot, and cover immense distances, the women carrying all the goods of each family. Their weapons are bows and arrows, made of extremely hard wood, and spears. With these they kill small animals and birds, which, with the natural fruit, form their food. They are extremely superstitious, and appear lower in the scale than Patagonian Indians. They average about 5 feet 6 inches in height, and are well formed, face flat, hair black and long, complexion mahogany, head round. They wear nothing but a puncho here, and in the Chaco clothe themselves in animal skins. They have no idea of a God, but have great fear of an evil spirit, and are intensely superstitious. They have no kind of writing, and make no hieroglyphics whatever. Sr. Cornejo has offered to give them ground to cultivate and cows for breeding ; but they prefer their nomad life in the Chaco to the more civilized habit.

The chirumoya is a fruit very little known, introduced from Peru by the ancestors of Sr. Cornejo to this country. It is a tree about fifteen feet high, but the branches spread to some distance. The fruit is about the size of a large orange, with a smooth green skin, of an irregular but roundish form. The inside is a dull whitish substance, the seeds flat and black ; all the interior, with the exception of the seeds, is eaten, and it has a delicious sweet and agreeable taste.

Buteo erythronotus, one shot, pretty common in the more open land.

Little black Flycatcher, male, one shot, common; perches on low bushes. I believe also the brown Flycatcher is the same species, but the female of the above; one also shot. *Zonotrichia pileata*, two shot, very common everywhere. Little reddish Flycatcher, common, one shot, a female. The male has a bright crimson crest.

Little rufous Flycatcher, one shot. Lives in low trees; the male is black, I believe.

June 23-25. During the two first days I remained at Campo Santo, or rather San Isidro, having an exceedingly pleasant time. The nights are cold, but the days delightfully warm. On the last-named date I left in the afternoon for San Bernardo, a small hamlet on the property of Don Cornejo. We arrived in the evening, though only twelve miles, having many delays with the mules. It is to the east of San Isidro, at the foot of some low Sierras and close to the Rio Lavayer.

June 26. I am established at the house of Don Rudolpho Figaro, at San Bernardo. The woods here are very large and the verdure luxuriant. On some neighbouring Sierras, about five miles to the east, there is often snow, and fifteen miles to the west there is a range of Sierras whose tops are rarely without snow.

Hawk, one shot, common, seen frequently during my journey from Cordova; frequents same places and flies much the same as *Tinnunculus sparverius*.

June 27. It is much colder here than at San Isidro. Every night we have a frost. The thermometer at 9 A.M. in the shade averages about 40°. At midday, or rather about 2 P.M., it rises to 70°, and in the sun much higher. Skinned eight birds.

Woodpecker, small, same as about Rio de las Piedras, common; frequents low trees.

Woodpecker, red-headed, common in the monte; two shot. Flycatcher, two shot, common.

Finch, two shot, common; feeds on buds.

June 28. Went out shooting and did collecting. The woods are good for small birds, containing many pools of water. Skinned six birds. Very cold at night, in the day very pleasant.

Black Ibis, rare in the swamps, one shot.

Bittern, one shot in a swamp in the woods, only one seen.

Kingfisher, male and female, shot in the monte, not common ; the female has rufous on the breast, like the former.

Partridge, lives in the woods, not common, only one shot.

Small Finch, one shot, male and female alike ; rare.

There is a smaller Bittern of a light grey colour, also Snipe ; neither yet obtained.

June 29. Thermometer 9 A.M. 33° ; hard frost last night.

Large Owl, ♂, one shot in the monte ; lives in shady spots amongst large trees ; not seen again.

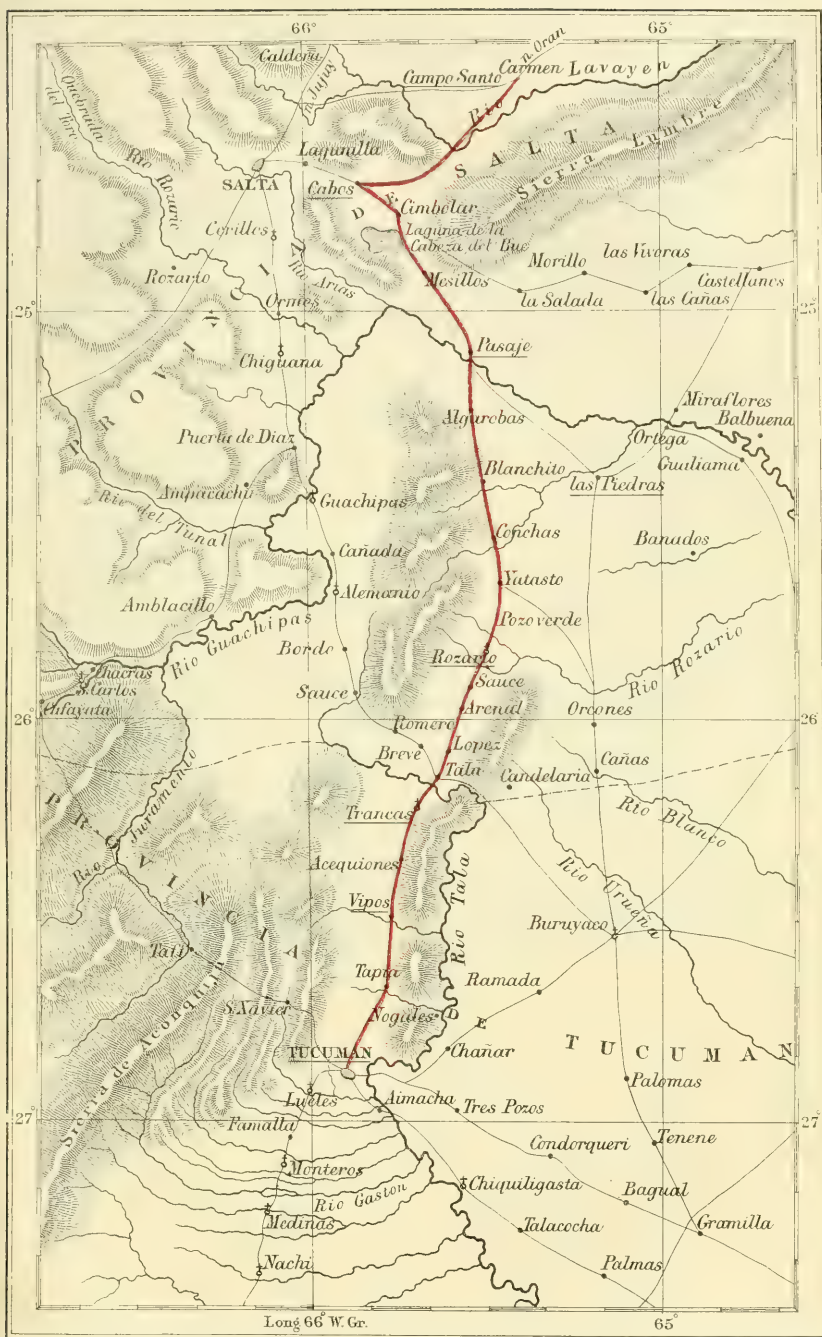
Creeper, same as shot previously, common, one shot. *Milvago chimango*, saw one today ; rare here. Woodpecker, one skinned, common. These birds have some habits like Woodpeckers in flight, feeding on trunks of trees, but spend much time on the ground, feeding on insects there.

[Subsequent to the 29th of June no entry appears in the diary, nor do any of the birds which have reached England seem to have been killed at a later date. We gather, however, from other sources, that he remained for some days at San Bernardo, occasionally riding over to Señor Cornejo's house at Campo Santo. About the beginning of July (the exact date is not quite clear) he was taken ill, and made at once for Campo Santo, evidently feeling that here he would be in good hands should his condition become at all serious. After this Durnford's strength began to fail rapidly, and, notwithstanding all the exertions of Señor Cornejo and his family, he gradually grew worse, and breathed his last on the morning of the 13th July, 1878.]

XLII.—*Ornithological Letters from the Pacific*.—No. IV.*
The Gilbert Islands, Kingsmill Group. By OTTO FINSCH,
Ph.D., H.M.B.O.U., &c.

DURING November and December last year I made a cruise in the Gilbert Archipelago, or Kingsmill group, on board

* For No. III. see *antèa*, p. 329.



Stanford's Geog.^l Estab.^t

PART OF ARGENTINE REPUBLIC, SHEWING MR DURNFORD'S ROUTE.